

**TOMENTAURUM (ASTERACEAE: ASTEREA), A NEW GENUS OF
GOLDENASTER FROM CHIHUAHUA, MÉXICO**

Guy L. Nesom

Department of Botany, University of Texas, Austin, Texas 78713 U.S.A.

ABSTRACT

Tomentaurum, a new monotypic genus of the goldenaster lineage, is based on *Heterotheca vandevenderorum*, with the new combination **Tomentaurum vandevenderorum**. These plants are endemic to west central Chihuahua, México and are distinguished by the following combination of features: rhizomatous, leaves mostly basal, obovate-oblong, dense and closely white tomentose, heads large, solitary, on long scapes, rays yellow and coiling, disc corollas very long, achenes narrowly oblong and strongly compressed, with numerous, whitish, superficial nerves, and pappus double. In its dense vestiture of minutely filiform hairs arising from similarly thin bases, *Tomentaurum* is hypothesized to be most closely related to the North American genera *Pityopsis* and *Croptilon*.

KEY WORDS: *Tomentaurum*, *Heterotheca*, *Pityopsis*, Astereae, Asteraceae, México

In a review and phylogenetic analysis (Nesom 1991a) of the genera closely related to the goldenasters *Heterotheca*, *Chrysopsis*, and *Pityopsis* (sensu Semple *et al.* 1980), it has become evident that a recently described species known by only a few collections from northwest México cannot be placed within any of the known goldenaster genera, although it is clearly a member of that phylad. Turner (1987) noted that the species was "very distinctive" but apart from placing it in *Heterotheca*, he did not offer an hypothesis regarding its possible closest relatives. The distinctive plants from Chihuahua are described here as a monotypic genus.

Tomentaurum Nesom, *gen. nov.* Type species: *Heterotheca vandevenderorum* B. Turner

Plantae rhizomatosae, folia praecipue basalia obovati-oblanco-lata dense arcte albo tomentosa, capitula grandia solitaria in scapis longis, corollae radii flavae circinnatae, corollae disci longae, achenia longae valde compressae nervis numerosis albidis superficialibusque, et pappus duplex.

Tomentaurum vandevenderorum (B. Turner) Nesom, *comb. nov.* **BA-SIONYM:** *Heterotheca vandevenderorum* B. Turner, *Phytologia* 63:127. 1987. **TYPE:** MÉXICO. Chihuahua: Río Mayo Region, El Capitán, 28° 13' 30" N, 108° 07' 30" W, 2000 m, 26 Jun 1986, *P.S. Martin 56* (**HOLOTYPE:** TEX!; **Isotype:** ARIZ).

Perennial herbs from slender, slightly woody rhizomes, these producing long, caudexlike branches with scale leaves; stems, leaves, and phyllaries densely invested with short, biseriate trichomes (Type C trichomes, see Nesom 1991a), each with a few celled, orange resinous head, the glands sometimes nearly sessile on the phyllaries, stems and leaves tomentose with very long, uniseriate, few celled, minutely filiform white hairs from equally small bases (Type B trichomes), completely lacking coarser uniseriate trichomes ("osteolate" or Type A trichomes). Stems unbranched, erect, stipitate glandular, closely tomentose. Leaves in a basal rosette or on the basal 3-10 cm of the stems, oblanceolate-obovate, 2-4 cm long, 3-9 mm wide, entire, the cauline subclasping, densely woolly tomentose, tardily glabrescent above. Heads 16-20 mm wide, solitary on scapose peduncles 12-25 cm long; receptacles very shallow convex, barely foveolate; phyllaries narrowly ovate-lanceolate, strongly graduated in 5-6 series, the inner 10-13 mm long, the margins purplish, with a prominent, scarious flange, the outer herbaceous, the middle strongly keeled, herbaceous only at the apex. Ray flowers 16-21, pistillate, fertile, yellow, 10-13 mm long, the ligules 2.0-2.5 mm wide, tightly coiling after receptivity of the ray stigmas. Disc corollas perfect, tubular, 8-9 mm long, the lobes with uniseriate, acicular trichomes, with elongate, straight sided crystals in the tissues of the lower throat; style branches 1.4-1.7 mm long, with linear-lanceolate appendages 1/3-1/2 the length of the branches. Achenes densely white-sericeous, 4.5-5.5 mm long, 0.6-0.7 mm wide, strongly compressed, with 7-9 thin, closely adjacent, superficial, white nerves on each side, one or two of these often slightly thicker than the others; carpopodium strongly asymmetric; pappus of 45-60 white, barbellate bristles in several series, with a few, inconspicuous setae or very slightly widened bristles 0.5-1.5 mm long. Chromosome number unknown.

Endemic to the plateau in the area of Basaseachic, Chihuahua; rocky stream beds or sandy-cobbly soil, area of pine woodlands; 2000-2100 m; flowering July-September.

Additional collections examined: MEXICO. Chihuahua: Rancho El Capitán, 28° 13' 30" N, 108° 07' 30" W, 22 Jun 1987, T.R. & R.K. Van Devender 87-134 with P. S. Martin (TEX); N edge of town of Basaseachic on Río de Basaseachic, 28° 12' 40" N, 108° 12' 50" W, 24 Jun 1987, T.R. & R.K. Van Devender 87-165 with P. S. Martin (TEX).

Tomentaurum is a member of the goldenaster lineage (Nesom 1991a), as evidenced by its stipitate glandular herbage, keeled phyllaries, ray flowers with yellow, coiling ligules, disc corolla throats with elongate crystals, linear-lanceolate disc style appendages, achenes with asymmetric carpodia, and the pappus with an outer series of members much shorter than the inner. The narrow achenes with numerous, superficial nerves appear to be of relatively primitive morphology (Nesom 1991a).

Plants of *Tomentaurum* are habitally distinctive: they are rhizomatous, the rosettes arising from somewhat herbaceous, slender caudex branches with scale leaves, the basal leaves persistent, obovate-oblancoolate, densely and closely white tomentose, and the scapose stems long and unbranched, bearing large, solitary heads. The only goldenaster species that are somewhat similar in habit (i.e., rhizomatous, basal leaves persistent, monocephalous) are *Heterotheca chihuahuana* (Turner & Sundberg) B. Turner and those of *Osbertia* E. Greene and *Noticastrum* DC. (Nesom 1991b), but all of these differ strongly from *Tomentaurum* in significant features (Nesom 1991a).

In its dense tomentum of highly elaborated, minutely filiform hairs arising from similarly thin bases (Type B trichomes; see Nesom 1991a for trichome terminology), *Tomentaurum* is hypothesized to be closely related to the North American genera *Pityopsis* Nutt. and *Croptilon* Rafin. (Nesom 1991a). *Tomentaurum* differs from both of the latter genera, particularly in its less specialized leaves (shape, venation, and anatomy), glandular trichomes with much less highly elaborated heads, large, solitary capitula, and strongly compressed achenes. All species of *Heterotheca* (except *H. chihuahuana* and *H. mucronata* Harms ex Turner) are taprooted and produce relatively short, thick walled Type A trichomes mixed with an understory of minute, inconspicuous Type B trichomes.

ACKNOWLEDGMENTS

I thank Dr. B.L. Turner and Dr. Andrew McDonald for their review and comments on the manuscript.

LITERATURE CITED

- Nesom, G.L. 1991a. An phylogenetic hypothesis for the goldenasters (Asteraceae: Astereae). *Phytologia* 71:136-151.
- Nesom, G.L. 1991b. Transfer of *Heterotheca bartlettii* to *Osbertia* (Asteraceae: Astereae). *Phytologia* 71:132-135.
- Semple, J.C., V.C. Blok, & P. Heiman. 1980. Morphological, anatomical, habit and habitat differences among the goldenaster genera *Chrysopsis*, *Heterotheca*, and *Pityopsis* (Compositae-Astereae). *Canad. J. Bot.* 58:147-163.
- Turner, B.L. 1987. New species and combinations in Mexican *Heterotheca* (Asteraceae-Astereae). *Phytologia* 63:127-128.